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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,872	12/13/2000	Yigal Katzir	140/01667	9284
23373	7590	10/12/2004	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			NGHIEM, MICHAEL P	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 10/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s) 	
	09/735,872		KATZIR ET AL.	
	Examiner		Art Unit	
	Michael P Nghiem		2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 and 61-70 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 49-54 is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-12, 26-35, 61-67, 69 and 70 is/are rejected.
- 7) ☒ Claim(s) 9, 13-25, 36-48 and 68 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Amendment filed on July 28, 2004 has been acknowledged.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 26-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Epworth (GB 2 245 790).

Regarding claims 1 and 26, Epworth discloses an apparatus and method for transmitting information at a data rate (Fig. 1) comprising:

- a pulsed light source (11) that produces pulsed light (Fig. 1);
- a data signal source (18) that provides data signals (data signals from 18); and
- a modulator (15's) that receives the pulsed light and the data signals (Fig. 1)

and selectively modulates the pulsed light with a modulating signal responsive to the data signals (Fig. 1) at a data rate that is higher than a pulse repetition rate of the pulsed light (Figs. 2a, 2b).

Regarding claims 2 and 27, Epworth discloses that the pulsed light source is a line source and wherein the modulator spatially modulates the line (Figs. 1, 2's).

Regarding claims 3 and 28, Epworth discloses that the modulator independently modulates different sections of the line at the data rate (each signal line is modulated independently by 15's, Fig. 1).

Regarding claim 4, Epworth discloses that the pulsed light comprises a laser beam (solid laser 11).

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 61-67, 69, and 70 are rejected under 35 U.S.C. 102(e) as being anticipated by Katzir et al. (US 6,275,514).

Regarding claim 61, Katzir et al. discloses an apparatus (Fig. 1) for recording an image on a photosensitive surface (35), comprising:

- a pulsed light source (18) that produces pulsed light (20) having a first wavelength and a pulse repetition rate (Fig. 1);
- a wavelength converter (column 16, line 23) external to the pulsed light source that receives said pulsed light and outputs wavelength converted pulsed light having a second wavelength which is less than the first wavelength (column 16, lines 23-26);
- a multi-channel modulator (column 8, lines 65-67, also see modulator 20, Fig. 1's of Gross, US 5,309,178) that receives and modulates the wavelength converted pulsed light (column 16, lines 27-28);
- a scanner that scans the modulated wavelength converted pulsed light over the surface (column 16, lines 29-31).

Regarding claim 62, Katzir et al. discloses that the pulsed light source is a laser (column 3, lines 12-13).

Regarding claim 63, Katzir et al. discloses that the pulsed light has a first wavelength in the IR spectrum (column 6, lines 50-53).

Regarding claim 64, Katzir et al. discloses that the wavelength converter is a non-linear medium (column 2, lines 52-54).

Regarding claim 65, Katzir et al. discloses that the pulsed light source comprises a laser cavity and the non-linear medium is external to the laser cavity (column 16, lines 23-24).

Regarding claims 66 and 67, Katzir et al. discloses that the wavelength converted pulsed light has a wavelength which is in the UV spectrum (column 6, lines 53-55).

Regarding claim 69, Katzir et al. discloses that the pulsed repetition rate is less than a data rate at which said modulator modulates said pulsed light (column 2, lines 45-46).

Regarding claim 70, Katzir et al. discloses that the pulse repetition rate is multiplied by a pulse repetition rate multiplier (column 3, lines 41-44).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-8, 10-12, and 29-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epworth in view of Vadasz et al. (US 4,201,455).

Epworth discloses the claimed limitations as discussed above.

Epworth further discloses, regarding claim 8, that the modulator is operative to provide modulation that is asynchronous with the pulses (modulation by omitting selected pulses, Abstract, lines 4-5).

However, Epworth does not disclose:

- regarding claims 5 and 29, a photosensitive surface and a scanner that scans the modulated pulsed light over the surface;
- regarding claims 10 and 33, the modulated light scans over the surface in a first direction and wherein the surface moves in a direction perpendicular to the direction of scanning such that the surface is illuminated by a raster scan;
- regarding claims 11 and 34, the photosensitive surface is a photoresist.

Nevertheless, Vadesz et al. discloses a photosensitive surface or photoresist (113) and a scanner (112), wherein, the modulated light scans over the surface in a first direction (via 112) and wherein the surface moves in a direction perpendicular to the direction of scanning such that the surface is illuminated by a raster scan (Fig. 1) for the purpose of scanning a modulated pulsed light over the surface (Fig. 1).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide Epworth with a photosensitive surface and a scanner as disclosed by Vadesz et al. for the purpose of scanning a modulated pulsed light over the photosensitive surface.

Allowable Subject Matter

4. Claims 9, 13-25, 36-48, and 68 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 49-54 are allowed.

Reasons For Allowance

6. The combination or method as claimed wherein the modulator selectably modulates portions of the pulsed light, wherein said portions are delivered pulse by pulse to spatially overlapping regions of a photosensitive surface to build up a pixelized pattern (claim 9) or a pulse repetition rate multiplier, which receives the initial pulsed light beam and produces at least one pulsed light beam having a higher pulse repetition rate than the initial rate (claims 13, 36) or a modulating signal responsive to the data signals for a time period longer than said time interval, such that the modulating signal is operative to modulate at least two successive pulses and wherein an attribute of the modulating signal changes between at least some of the two successive pulses (claim 49) or the non-linear medium is an LBO crystal (claim 68) is not disclosed, suggested, or made obvious by the prior art of record.

Response to Arguments

7. Applicant's arguments filed July 28, 2004 have been fully considered but they are not persuasive.

Amended claims 1-48 have been addressed above.

Regarding the 35 USC 102 rejection of claim 61, Applicants argue that Katzir does not teach a multi-channel modulator.

Examiner's position is that Katzir teaches a multi-channel modulator (column 8, lines 65-67, also see modulator 20, Fig. 1's of Gross, US 5,309,178).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 2863


mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-H from 6:30AM – 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached at (571) 272-2269. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


MICHAEL NGHIEM
PRIMARY EXAMINER

Michael Nghiem

October 6, 2004